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K. E. J. Barrett

The Distribution of Ants in Central Southern England

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TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

VOL. 17 MARCH 1968 PART IX

The Distribution of Ants in Central Southern England

By K. E. J. Barrett
(129 Smiths Lane, Windsor, Berks).

Introduction

The foundation of our detailed knowledge of the distribution of ants in the British Isles is largely due to the efforts of Donisthorpe. In his main work on the British Ants (1927) he listed detailed localities for the occurrence of many species and gave vice-county lists for those species he considered to be more widespread. The Watsonian vice-county system has also been used to review the present distribution of ants in Britain, taking account of the revision of species and further records accumulated since Donisthorpe's time (Collingwood and Barrett 1964, 1966).

The occurrence of a few species has been described in a more detailed way by the use of a system based on the ten kilometre squares of the Ordnance Survey (Barrett 1964, Barrett and Felton 1965, Barrett 1965). To determine and describe the distribution of all the British species by this means would be a formidable task. However, to serve as a basis for the comparison of the occurrence of all species over a more restricted range, a limited area in Central Southern England comprising some 99 ten kilometre squares, has been the subject of the present survey.

Area and method of collection

The area of the 99 ten kilometre squares surveyed (Figure 1) includes the northern half of the one hundred kilometre square SU (41) and the southern half of SP (42). It covers the whole of Berkshire, Oxford and Buckingham and parts of Wiltshire, Hampshire, Surrey, Bedford, Northampton, Gloucester and Warwick. The main structural features of the area include the chalk uplands of the Marlborough and Hampshire Downs in the south extending northwards to the Berkshire Downs and the Chiltern Hills. Intervening clay vales and sandy deposits occur up to the limestone hills of the Cotswolds and the Northampton Uplands to the north of the area. The geological features of the Thames Valley region have been described in detail by Sherlock (1962). In order to make a reasonably uniform survey of the area at least one site in each of the ten kilometre squares was examined and as far as possible the balance of the geological substrates of the 143 sites selected was representative of the whole region.

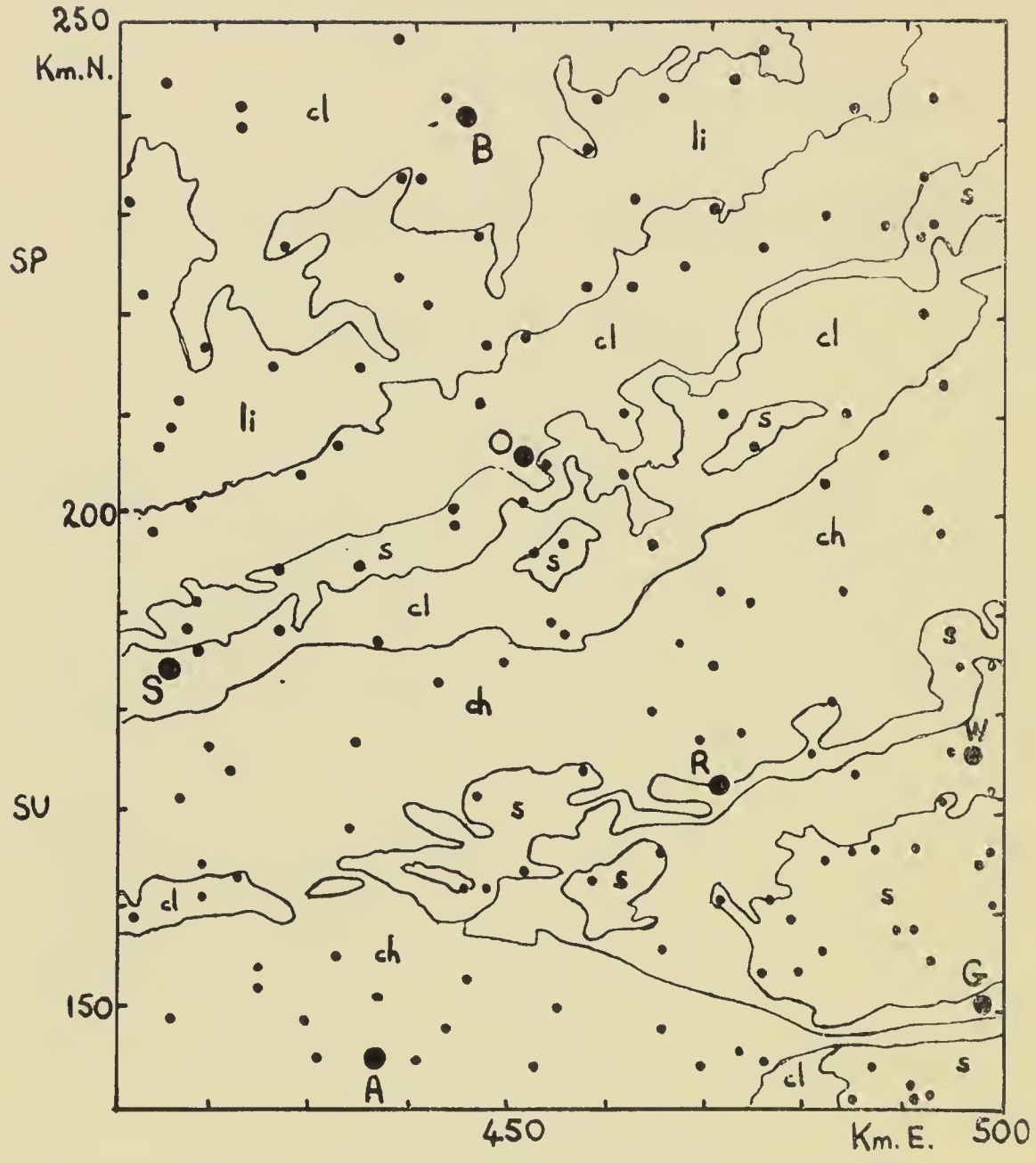

FIGURE 1—Distribution of sites examined in present survey.
Geology: s, sand; cl, clay; ch, chalk; li, limestone.
Towns: A, Andover; B, Banbury; G, Guildford; O, Oxford; R, Reading; S, Swindon; W, Windsor.

The survey was carried out mainly in the period 1962 to 1966. The distribution of the sites visited is given in Figure 1. These sites were not selected randomly but were chosen as likely from experience to contain the most species in any particular ten kilometre square or on a given substrate. Each square was not exhaustively searched for sites until all the likely species were revealed so that if a species is not recorded it does not mean that it is absent from that ten kilometre square but is less likely to occur there relative to the other species found. Since large parts of the region are either urbanised or intensively cultivated a large proportion of the sites examined were in marginal areas as represented by railway cuttings, road-side verges and similar places.

The species recorded were in the main identified in the field with a hand lens (x20). Any doubtful species were taken for subsequent diagnosis under a microscope. The presence of most ant species in a locality is readily detected, particularly the eight most abundant species listed at the head of Table 1. These are either active species readily seen foraging above ground or if more subterranean, the nests are readily found under stones or other prominent objects or are indicated by the presence of an earth mound. Some species are difficult to detect like the fugitive *Lasius brunneus* Latr. which nests inside trees or *Formicoxenus nitidulus* Nyl. which can usually only be found by an exhaustive search of the vegetable mound nest of its host (*Formica rufa* L.). Other subterranean species (like *Lasius umbratus* Nyl.) frequently reveal no external signs of the presence of a nest. It is probable that the determined frequency of occurrence of such species is too low. Such species are marked with * in Table 1 to indicate this possibility.

TABLE 1

Frequency of occurrence of species in area

Species	No. 10 km. squares in which found (=percentage frequency)
Lasius flavus Fab.	75
Lasius niger L.	74
Myrmica rubra L.	60
Myrmica scabrinodis Nyl.	54
Myrmica sabuleti Mein.	41
Myrmica ruginodis Nyl.	37
Formica fusca L.	30
Leptothorax acervorum Fab.	27
Formica rufa L.	14†
Formica sanguinea Latr.	10
Lasius fuliginosus Latr.	9
Lasius umbratus Nyl.*	9
Myrmica lobicornis Nyl.	5
Myrmica schencki Em.	5
Tetramorium caespitum L.	4
Leptothorax nylanderi Först.*	3
Lasius rabaudi Bond.*	2
Lasius alienus Först.	2
Lasius brunneus Latr.*	2
Stenamma westwoodii West.*	1
Lasius mixtus Nyl.*	1
Formica lemani Bond.	1
Formica cunicularia Latr.	1
Formica rufibarbis Fab.	1

†Includes 1 ten km. sq. in which species is now extinct.

*Species difficult to detect.

Results of present survey

The ten kilometre square distribution of the ant species found in 143 sites in 99 ten kilometre squares is shown in Figures 2 and 3. The species found are listed in order of decreasing frequency of occurrence in the 99 ten kilometre squares in Table 1.

Relative occurrence of ant species on main geological substrates

The geological substrates of the 143 sites examined in the area are listed in Table 2. Sites were selected to represent, as far as possible, the balance of the geological substrates of the whole region (see Figure 1). The lowest number of sites (17) were on limestone areas so that the percentage occurrence of species determined on this substrate is likely to be less reliable than for the others.

TABLE 2

Geological substrates of sites examined

No. of sites on:—					
Sands, Gravels		*Clays*		*Chalk, Limestones*	
Bagshot Beds	22	London Clay	5	Chalk	39
Oldhaven Beds	4	Gault	10	Cornbrash	2
Lower Greensand	10	Kimmeridge	3	Great Oolite	11
Corallian	4	Oxford Clay	19	Inf. Oolite	4
		Upper Lias	2		
		Middle Lias	3		
		Lower Lias	5		
Totals:—	40		47		56
Percentage:—	28·0		32·9		39·1

The percentage occurrence of all the ant species found in the present survey on the four main geological substrates is listed in Table 3.

TABLE 3

Percentage occurrence of ant species found on main geological substrates

	Sands	Clays	Chalk	Limestones
Total no. sites:—	40	47	39	17
Species				
M. rubra	20	77	28	65
M. ruginodis	62	15	21	29
M. scabrinodis	70	45	41	35
M. sabuleti	42	21	36	35
M. lobicornis	15	0	0	0
M. schencki	3	4	0	12
S. westwoodii	3	0	0	0
L. acervorum	70	11	10	18
L. nylanderi	5	2	0	0
T. caespitum	13	0	0	0
L. fuliginosus	25	2	0	6
L. niger	92	62	51	71
L. alienus	8	0	0	0
L. brunneus	8	0	0	0
L. flavus	57	81	62	53
L. umbratus	15	2	0	12
L. mixtus	3	0	0	0
L. rabaudi	5	0	0	0
F. rufa	35	4	3	0
F. sanguinea	48	0	0	0
F. fusca	82	9	13	12
F. lemani	0	2	0	0
F. cunicularia	3	0	0	0
F. rufibarbis	3	0	0	0
Total no. species:—	23	14	9	11

The total number of species was highest on sands. The percentage occurrence was also generally higher on sandy substrates. This applied particularly to *Leptothorax acervorum, Lasius fuliginosus, Formica rufa* and *F. fusca* whose percentage occurrence on sand was significantly higher than on the other substrates. The main exceptions were *Myrmica rubra* which had the lowest occurrence on sand, *Lasius flavus* which had a higher occurrence on clay and chalk and *Myrmica schencki* which occurred more frequently on limestone and clay but in this case the recorded sites were relatively few. *Formica lemani* was found in only one locality which was on clay.

A number of species were found exclusively on sandy heaths. These included *Formica sanguinea,* which had a higher abundance on sand than *F. rufa,* an ant restricted to wooded habitats. *Tetramorium caespitum, Lasius rabaudi* and *Formica rufibarbis* were also found only on sandy habitats. A number of species found only on sand in the present survey (*Myrmica lobicornis, Stenamma westwoodii, Lasius alienus, L. brunneus, L. mixtus* and *Formica cunicularia*) have been recorded from other substrates in the area. The percentage occurrence and general distribution of these and all the other recorded species is discussed in detail in the next section (Review of recorded species).

TABLE 4

Order of occurrence of ant species found on main geological substrates and in 10 Km. squares

Species	10 Km. Squares	Sand	Clay	Chalk	Limestone
M. rubra	3	11	2	5	2
M. ruginodis	6	5	6	6	6
M. scabrinodis	4	=3	4	3	=4
M. sabuleti	5	8	5	4	=4
M. lobicornis	=13	=12	—	—	—
M. schencki	=13	=19	=9	—	=8
S. westwoodii	=20	=19	—	—	—
L. acervorum	8	=3	7	8	7
L. nylanderi	16	=17	=11	—	—
T. caespitum	15	14	—	—	—
L. fuliginosus	=11	10	=11	—	11
L. niger	2	1	3	2	1
L. alienus	=17	=15	—	—	—
L. brunneus	=17	=15	—	—	—
L. flavus	1	6	1	1	3
L. umbratus	=11	=12	=11	—	=8
L. mixtus	=20	=19	—	—	—
L. rabaudi	=17	=17	—	—	—
F. rufa	9	9	=9	9	—
F. sanguinea	10	7	—	—	—
F. fusca	7	2	8	7	=8
F. lemani	=20	—	=11	—	—
F. cunicularia	=20	=19	—	—	—
F. rufibarbis	=20	=19	—	—	—
Total no. species:—24		23	14	9	11

The most frequent occurrence of any species on any substrate was *Lasius niger* on sand (92%). The species with a percentage occurrence of greater than 50%, in order of decreasing frequency, were as follows: —

1. *L. niger* (92%, sand)	2. *F. fusca* (82%, sand)
3. *L. flavus* (81%, clay)	4. *M. rubra* (77%, clay)
5. *L. niger* (71%, limestone)	=6. *M. scabrinodis* (70%, sand)
(7.) *L. acervorum* (70%, sand)	8. *M. rubra* (65%, limestone)
=9. *M. ruginodis* (62%, sand)	(10.) *L. niger* (62%, clay)
(11.) *L. flavus* (62%, chalk)	12. *L. flavus* (57%, sand)
13. *L. flavus* (53%, limestone)	14. *L. niger* (51%, chalk)

The order of occurrence of all the ant species found in the present survey on the four main geological substrates is compared with the over-all order of occurrence in the ten kilometre squares in Table 4.

Review of recorded species

Myrmecina graminicola Latr. is a subterranean species nesting under deep stones. It was not found in the present survey. It has been previously recorded from the area on chalk and limestone uplands (Donisthorpe 1927). More recently it was found on chalk at about 800 feet up in the Chilterns at Bald Hill, Oxon, and at Enslow, Oxon, and Wytham, Berks. amongst exposed limestone (A. J. Pontin 1960).

Formicoxenus nitidulus Nyl. is a small inquiline species living in the vegetable mound nests of *Formica rufa* L. (in the south of England). It probably occurs at most sites where *rufa* is abundant but is a difficult species to locate without a complete (and usually destructive) search of the hosts' nest. This was not attempted in the present survey. It has been recorded from four localities on sand. It probably no longer occurs at Tubney, Berks. (Donisthorpe 1927) since the host species has almost certainly become extinct there. It was last taken in the area at Burnham Beeches, Bucks., by C. A. Collingwood in 1931.

Myrmica rubra L. is usually absent from well-drained areas and its preference for moist and shady places has been noted previously (Donisthorpe 1927, Collingwood 1958). In the present survey its incidence on clays and limestone was significantly higher than on chalk and sand.

Myrmica ruginodis Nyl. appears to require less moisture in its habitat than *rubra* (Donisthorpe 1927). Its low incidence on clay and high incidence on sand was the reverse of that determined for *rubra*. The occurrence of *ruginodis* on limestone and chalk was relatively low. *M. ruginodis* is usually associated with woodland and its lower occurrence on these substrates may be related to the lower incidence of woodland in these areas.

Myrmica sulcinodis Nyl. is mainly an upland species in Continental Europe and North Britain but is also found on lowland heaths in Southern England. According to Collingwood (1958) it often occurs in the boggy parts of the Bagshot Sand areas of Dorset and the New Forest. The species was not located in the present survey. It has been recorded in the area in a few localities on Bagshot Sand (Donisthorpe 1927). It was not confirmed at Chobham, Surrey (Barrett 1963a) but has been recorded nearby (just outside the present area) at Woking, Surrey, by B. Ing in 1955. The only recent record inside the area is due to A. J. Pontin who took it at Mortimer, Berks. in 1960 on the Bagshot Sands. The scarcity of this species on the sandy heaths of Central Southern England is in marked contrast to the situation in parts of the New Forest where it is fairly readily located.

Myrmica scabrinodis Nyl. nests in a variety of situations but appears to tolerate more arid conditions than the other *Myrmica* species. In the area under review the occurrence on sand was significantly higher than on the other substrates. It was also more uniform on these substrates (clay, chalk, limestone) than for *rubra* and *ruginodis*.

Myrmica sabuleti Mein. nests in warm situations on hillsides and in sheltered localities and according to Collingwood (1958) nests in more insolated places than *ruginodis* but is less tolerant of arid situations where *scabrinodis* will flourish. In the present survey the incidence on sand, chalk and limestone was uniform and higher than on clay. The occurrence of *scabrinodis* was similar on limestone and chalk but significantly higher on sand and clay.

Myrmica lobicornis Nyl. was found exclusively on sandy heaths in the present survey. It has been previously recorded from the area on sandy habitats (Donisthorpe 1927, 1933). It has also been found on limestone pasture in the Costwolds at Aston Blank and at Stow-on-the-Wold, E. Gloucester (Collingwood 1961). More recently it was recorded from the Chilterns at Coombe Hill, Bucks. in moorland heath on clay overlying chalk. In contrast to *sulcinodis* the species is scarce in the New Forest and has not yet been recorded from the Dorset heaths whilst it is relatively common on the sandy heaths of Central Southern England where *sulcinodis* is distinctly sparse.

Myrmica schencki Em. was first recognised from the area of the present survey by A. J. Pontin, who identified it in a collection of British Ants in the Hope Dept. at Oxford (Pontin 1962). It had been taken at Wolvercote, near Oxford in 1911. The species was rediscovered near this locality at Cassington in 1962 (Barrett 1963). The present survey has led to an extension of our knowledge of the distribution of this local ant and further localities in the area were obtained from Surrey, Berkshire, Oxon, Northants. and Warwick (Barrett 1963, 1964a, 1965).

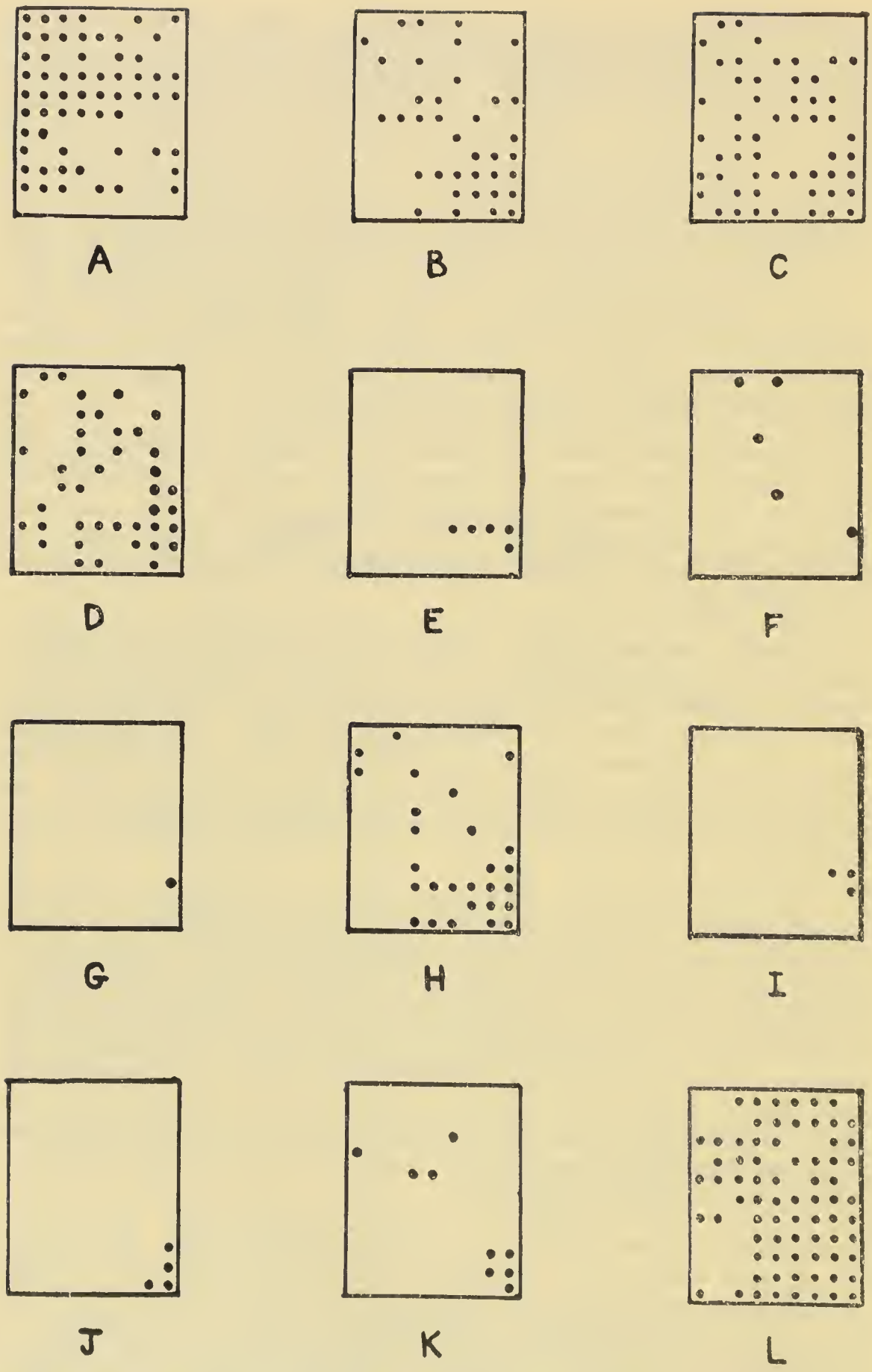

FIGURE 2—Distribution of species found in present survey.

A. *Myrmica rubra*
B. *M. ruginodis*
C. *M. scabrinodis*
D. *M. sabuleti*
E. *M. lobicornis*
F. *M. schencki*
G. *Stenamma westwoodii*
H. *Leptothorax acervorum*
I. *L. nylanderi*
J. *Tetramorium caespitum*
K. *Lasius fuliginosus*
L. *L. niger*

Stenamma westwoodii West. nests deep in the ground of shady woodlands and was found in only one locality at Longcross, Surrey. It has been recorded from the area in a number of woodland localities on sand, clay and chalk (Donisthorpe 1927, Kane and Tyler 1958, Richards 1939, 1959).

Leptothorax acervorum Fab. was abundant in sandy areas where its occurrence was very much higher than on the other substrates.

Leptothorax nylanderi Först. is a bark-inhabiting species often associated on trees with *Lasius brunneus* Latr. In the present survey it was found in localities on sand and clay. It has previously been recorded in the area on these substrates and also on chalk (Barrett 1964a, Collingwood 1961, 1962, Donisthorpe 1927, Kane and Tyler 1958, Richards 1959).

Tetramorium caespitum L. was found exclusively on sandy heaths in the area. The other recorded localities are also on sand (Donisthorpe 1927). The early (1912) record from Tubney could not be confirmed (Barrett 1964b) and it is probably now extinct there. Surprisingly, its occurrence in Berkshire was not confirmed although many apparently suitable heaths in the county were examined.*

Tapinoma erraticum Latr., a heath inhabiting species, was not found although it was taken just outside the area at Horsell Common, Surrey (Barrett 1963a). It has been recorded from a few localities on sand in the area (Donisthorpe 1927, Morley 1938) and more recently from Bisley and Chobham, Surrey (C. A. Collingwood).

Lasius fuliginosus Latr. is a species usually associated with woodland but it does occur away from trees as at Charndon, Bucks., where it nested under the masonry of a railway bridge and on Chobham Common, Surrey, where in places it is very abundant on the open heath. At Sherbourne, East Glouc., it was present in an exposed belt of woodland marching in files along the base of a drystone wall together with workers of *Lasius umbratus*. The incidence of *fuliginosus* on sandy soils in the present survey was greater than on other substrates and a similar distribution is shown from other recorded localities (Berks. Nat. Trust 1960, Chambers 1949, Collingwood 1966, Donisthorpe 1927, 1927a, 1936, Hamm 1926, Richards 1939).

Lasius niger L. was abundant and widespread and in the present survey its occurrence was high on all substrates and especially high on sand.

Lasius alienus Först. nests in dry situations and is a more subterranean species than *niger*. It was found in 3 localities, all

*I have since located this species near Wokingham in Berkshire (1967).

on sand. It has also been recorded in the area on chalk and limestone (Donisthorpe 1927, Collingwood 1966). In addition it has occurred at Bald Hill and Headington Wick, Oxon (A. J. Pontin) and at Aston Blank, E. Glouc. (C. A. Collingwood).

Lasius brunneus Latr. inhabits parkland oaks and other trees and was found in 3 localities on sand. It has been recorded on all substrates in the area (Barrett 1964b, Chambers 1955, Collingwood 1957, 1962, 1966, Donisthorpe 1927, 1933, Elton 1966, Green and Kane 1958, Kane and Tyler 1958, Williamson 1954).

Lasius flavus Fab. is a widespread, subterranean species which builds characteristic earth mounds on grassland. Its occurrence was significantly higher on clay than on the other substrates.

Lasius umbratus Nyl. is also a subterranean species and was taken on all substrates except chalk in the present survey. It has also been recorded at Slough, Bucks. (Collingwood 1966).

Lasius mixtus Nyl. is very similar to the above species. A deälated female was wandering alone in a sand-pit at Windsor Great Park but was not otherwise found in the present survey. It has been recorded at Heckfield Heath, N. Hants., on sand (Collingwood 1966) but also more often on limestone as at Aston Blank, E. Glouc. (Collingwood 1961) and at Bletchington and Woodeaton, Oxon (early records confirmed by Collingwood 1963).

Lasius rabaudi Bond., the third species of this closely related *umbratus* group is more distinctive than *mixtus*. It occurs mainly on sandy heaths and was found exclusively on sand in the present survey. Other records from the area include Pamber Forest and Stratfield Turgis, N. Hants. (C. A. Collingwood). The recent revision of the *umbratus* group (Wilson 1955, Collingwood 1963) has made the identification of earlier recorded species uncertain (Donisthorpe 1927, 1933, Eustace 1946, Hobby 1946, Morley 1939, Richards 1939). These records are not included in Table 5 unless the actual specimens have been re-examined.

Formica rufa L. is the vegetable-mound building species of woodlands in Southern England. The actual distribution of this prominent species (and also *F. sanguinea* below) is more accurately known than the rest of the species in Central Southern England since they have been the subjects of separate surveys. *F. rufa* had much the highest abundance in sandy areas but also occurred on clay and chalk. It formerly occurred in a number of localities on the Corallian sand near Oxford. These included Kingston Bagpuize, Berks. (Nelmes 1938), Shotover, Oxon (Yarrow 1955) and Stow Wood, Elsfield, Oxon (Richards 1939) but the species is now extinct from these places. It was confirmed at Tubney, Berks. in the present survey and was seen at Tubney Triangle by A. J. Pontin in 1962 but it has since disappeared from both localities. The species is still flourishing at Shabbington, Bucks., where it

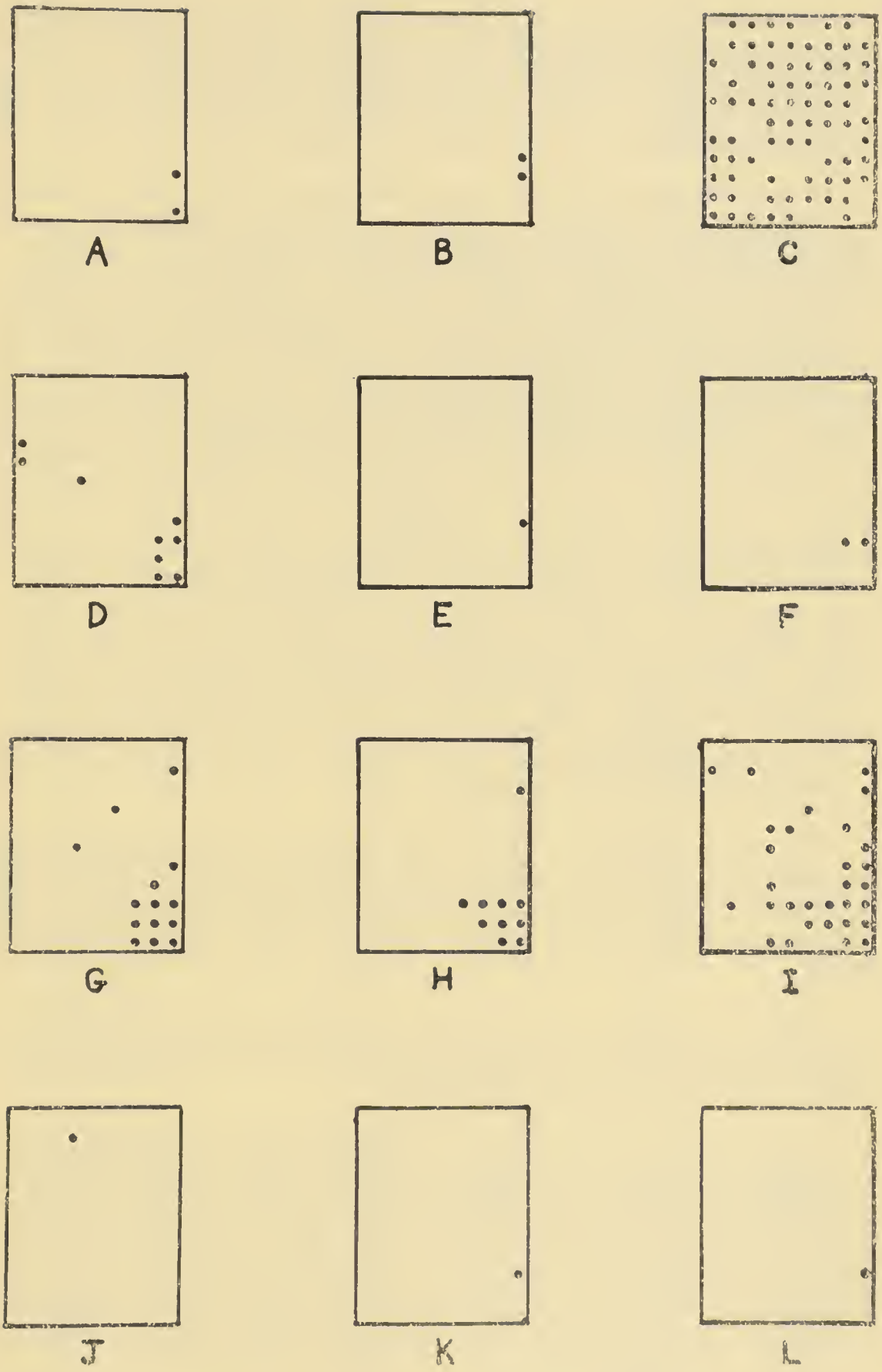

FIGURE 3—Distribution of species found in present survey.

A. *Lasius alienus* B. *L. brunneus* C. *L. flavus*
D. *L. umbratus* E. *L. mixtus* F. *L. rabaudi*
G. *Formica rufa* H. *F. sanguinea* I. *F. fusca*
J. *F. lemani* K. *F. cunicularia* L. *F. rufibarbis*

was first located by A. J. Pontin. This site is on Oxford Clay adjacent to the Corallian Beds and is the only inhabited site in the Oxford area now known. The species was confirmed at Bow Brickhill, Bucks, on Lower Greensand, a site first recorded by Chambers (1949).

F. rufa has also become extinct at sites in the area on chalk (usually overlaid with flinty clays or gravel). It formerly occurred at West Wood and Rabley Wood, near Marlborough, N. Wilts., Harewood Forest and Spring Woods, Tunworth, N. Hants. (Nelmes 1938), Bradfield, Berks. (Donisthorpe 1927), Mapledurham and Chazey Wood, Caversham, Oxon (Richards 1939). A deälated female was found at Caversham, Oxon, in 1955 (Yarrow 1956) but it most probably originated from the sandy heaths of Berks. to the South where the species is abundant. No nest sites are now known from the Caversham area or elsewhere in Oxon. The species was still present on chalk at Long Sutton, N. Hants., where it was first reported by Morley (1939). It has also been recently recorded on chalk by C. Hudson at Collingbourne Wood, Ludgershall, S. Wilts. The main concentration of records is situated to the South-East of the area on Lower Greensand and Bagshot Beds and it continues to be abundant in this area. The decline of this species in some areas, noted and discussed elsewhere (Barrett and Felton 1965) is also marked in Central Southern England. It has been recorded there from 24 ten kilometre squares and has now disappeared from 9 of these. It has become extinct in 2 of these in the last few years.

Formica sanguinea Latr., the large, 'slave-making' ant, occurred exclusively on sandy heaths in the area and had a high incidence in those places. The general distribution of this species in Southern England has been recently reviewed in detail (Barrett 1964).

Formica fusca L. had a high incidence on sand in Central Southern England and occurred uniformly but less abundantly on chalk, limestone and clay substrates.

Formica lemani Bond. is a moorland species occurring mainly in Northern Britain but it has also been found in upland areas in the West Country (Dartmoor, Exmoor, etc.). It was found in a single locality at Milcombe, Oxon., on clay some 450′ up in the East Cotswolds for the first time in the area of the present survey. *F. fusca* occurred at a similar elevation 2 miles to the West on limestone. *F. lemani* was not found elsewhere in the Cotswolds nor in the Chiltern Hills.

Formica cunicularia Latr. occurs in well-drained areas but in the present study was found in only a single locality on sand (Chobham Common). The species has also been recorded from

Enslow (Donisthorpe 1927, A. J. Pontin) and Bayswater Mill (Richards 1939, A. J. Pontin) on limestone and Corallian sand respectively in Oxon. It has been recorded without locality for Berkshire (Hamm 1906) but could not be found in many apparently suitable localities in the County in the present survey.

Formica rufibarbis Fab. is confined to a few heathland areas in Surrey (Donisthorpe 1927, Yarrow 1954). Its presence at Chobham Common was confirmed in the present survey and the species was still flourishing in the same sites in 1966. It has also been recorded from Longcross (Pontin 1960) in the same area.

The total number of the ten kilometre square records for all the species reviewed above and those recorded since 1950 are listed separately in Table 5 in the next section.

TABLE 5

Percentage occurrence of ants in the ten kilometre squares of Central Southern England and Kent

Species	C.S. England		Kent	
	All records	Since 1950	All records	Since 1950
P. coarctata	—	—	36	22
M. graminicola	10	3	22	13
F. nitidulus	3	—	4	4
S. fugax	—	—	4	2
M. rubra	—	60	62	56
M. ruginodis	—	37	44	44
M. sulcinodis	5	1	—	—
M. scabrinodis	—	54	47	42
M. sabuleti	—	41	38	36
M. puerilis	—	—	7	7
M. lobicornis	15	8	11	7
M. schencki	5	5	7	7
S. westwoodii	8	6	24	9
L. acervorum	—	27	38	27
L. nylanderi	13	8	20	18
L. tuberum	—	—	7	2
L. interruptus	—	—	2	2
T. caespitum	7	4	24	9
T. erraticum	4	2	2	2
L. fuliginosus	17	16	27	22
L. niger	—	74	82	78
L. alienus	12	6	27	24
L. brunneus	13	10	—	—
L. flavus	—	75	82	78
L. umbratus	—	16	—	9
L. mixtus	—	5	—	11
L. rabaudi	—	5	—	2
F. rufa	24	17	49	40
F. sanguinea	10	10	2	—
F. fusca	—	30	44	42
F. lemani	1	1	—	—
F. cunicularia	3	3	36	27
F. rufibarbis	1	1	—	—

Comparison of distribution of ants in Central Southern and South Eastern England

The percentage occurrence of indigenous ants in the 99 ten kilometre squares of Central Southern England is listed in Table 5, In addition, the percentage occurrence of ants found in 45 (out of a possible 52) ten kilometre squares in Kent from records assembled in a recent survey of ant distribution in the County (Felton 1967) is also given. Total records and records since 1950 are separately listed for both areas.

A few species were confined to one area only. *Ponera coarctata* Latr., *Solenopsis fugax* Latr., *Myrmica puerilis* St., *Leptothorax tuberum* Fab., *L. interruptus* Sch. have not been recorded in Central Southern England. *Myrmica sulcinodis, Lasius brunneus, Formica lemani, F. rufibarbis* are unrecorded from Kent. Most of the species which occur in both areas showed a generally similar level of occurrence. The main exceptions included *Lasius alienus, Formica rufa, F. fusca, F. cunicularia.* These species had a strikingly higher occurrence in Kent. *Lasius fuliginosus* and *Tetramorium caespitum* also had a somewhat higher occurrence in Kent but differences in method and areas covered of the two surveys must be borne in mind. Some differences in occurrence might be expected (e.g. in the case of *F. cunicularia, T. caespitum* or *L. tuberum*) from the absence of coastal regions in Central Southern England. *Myrmica scabrinodis* had a somewhat higher occurrence in this area. *Lasius umbratus* had a higher incidence than *L. mixtus* in C.S. England whilst the occurrence of the species was similar in Kent. The decline in the incidence of *Formica rufa* was marked in both areas but larger (30% decrease) in C.S. England than in Kent (20% decrease). In contrast, there is no evidence of a similar decline in the case of *F. sanguinea* in C.S. England but in Kent no recent record of the species has been obtained.

Summary

The relative abundance of ant species in an area of 99 ten kilometre squares in Central Southern England has been examined and their distribution is discussed with particular reference to geological substrates. The recorded distribution of ants in the area is reviewed and compared with the results of a similar survey of Kent.

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